

CLAIMS

What is claimed is:

- 5 1. A method of receiving packets comprising:
 - 2 setting a first and a second precondition to indicate when to begin copying at
 - 3 least one packet payload from a first buffer of an offload engine to a receive buffer of
 - 4 a host memory;
 - 5 receiving at least one packet at the offload engine from a network
 - 6 communication link,
 - 7 appending a packet payload of the at least one packet to the first buffer of the
 - 8 offload engine;
 - 9 determining whether the first precondition has been met based, at least in
 - 10 part, on a state of the first buffer;
 - 11 determining whether the second precondition has been met based, at least in
 - 12 part, on the state of the first buffer;
 - 13 copying at least a portion of the first buffer of the offload engine to the receive
 - 14 buffer of the host memory if the first precondition has been met; and
 - 15 repeating the method until the second precondition has been met.
- 1 2. The method of claim 1 further comprising receiving another packet from the
- 2 network communication link if the second precondition has not been met.

1 3. The method of claim 1 further comprising increasing a count to offset future
2 copies from the first buffer to the host memory.

1 4. The method of claim 1 wherein said copying at least a portion of the first buffer
2 to the receive buffer comprises copying a portion of the packet payload.

1 5. The method of claim 4 wherein said copying at least a portion of the first buffer
2 to the receive buffer comprises copying the portion of the packet payload as well as at
3 least one previously received packet payload of the first buffer.

1 6. The method of claim 1 wherein said copying the at least a portion of the first
2 buffer of the offload engine to the receive buffer of the host memory comprises a DMA
3 copy of the at least a portion of the first buffer and releasing the at least a portion of
4 the first buffer.

1 7. The method of claim 1 wherein the first precondition comprises a
2 predetermined percentage of the first buffer of the offload engine being filled with
3 payload data.

1 8. The method of claim 1 wherein the first precondition comprises a
2 predetermined number of bytes in the first buffer of the offload engine.

1 9. The method of claim 1 wherein the first precondition comprises a
2 predetermined time period having passed since said setting of the first precondition.

1 10. A network offload engine comprising:
2 a first interface to receive packets from a network communication link;
3 a first buffer to store packet payloads of at least some of the received packets;
4 a second interface to a host memory to copy the packet payloads that are
5 stored in the first buffer to a receive buffer in the host memory in response to a first
6 precondition;
7 logic to copy contents of the first buffer to a location in the receive buffer of the
8 host memory in response to the first precondition being met, the logic to notify a host
9 in response to meeting a second precondition;
10 a count device to offset the location in the receive buffer where the contents of
11 the first buffer are to be copied, the offset being relative to the received packet
12 payloads that have already been copied from the first buffer to the receive buffer.

1 11. The network offload engine of claim 10 wherein the count device stores a
2 number representing the number of bytes that have been copied from the first buffer
3 to the receive buffer.

1 12. The network offload engine of claim 10 further comprising a direct memory
2 access engine to copy payload data from the first buffer to the receive buffer.

1 13. The network offload engine of claim 10 wherein the network communication
2 link comprises a cable for Ethernet communication.

1 14. A system comprising:
2 a host processor to host applications for receiving packets;
3 a host memory having a receive buffer to store packet payload data received
4 from a network communication link communicating with the host;
5 an unshielded twisted pair communication link to transmit packets; and
6 a network offload engine to receive the packet payload data in a first buffer, the
7 network offload engine having an engine to copy the packet payload data in the first
8 buffer to the receive buffer of the host memory independently of notification of the
9 host processor and in response to the first buffer meeting a first precondition, the
10 engine to notify the host processor in response to a second precondition being met.

1 15. The system of claim 14 wherein the network offload engine further comprises a
2 direct memory access engine for copying the packet payload data in the first buffer to
3 the receive buffer.

1 16 The system of claim 14 wherein the unshielded twisted pair communication link
2 comprises an Ethernet adapter.

1 17. An article comprising:

2 a storage medium of a network adapter comprising machine-readable
3 instructions stored thereon to:
4 set a first and a second precondition to copy received packets in a first buffer
5 of a network offload engine of the network adapter to a receive buffer at a host
6 memory in response to, at least in part, meeting the first precondition at the network
7 adapter;
8 append a packet payload to the first buffer of the offload engine;
9 access with an engine of the offload engine a flag that indicates whether the
10 first precondition has been met by said appending the packet payload to the first
11 buffer of the offload engine;
12 access with the engine another flag that indicates whether the second
13 precondition has been met by the packet payload being appended to the first buffer
14 in view of previous packet payloads that have been appended to the first buffer;
15 copy at least a portion of the first buffer of the offload engine to the receive
16 buffer of the host memory in response to meeting the first precondition; and
17 repeat the method each time the first precondition has been met until meeting
18 the second precondition.

1 18. The article of claim 17 wherein the storage medium further comprises machine-
2 readable instructions to increase a count when the at least a portion of the first buffer
3 is copied to the receive buffer, the count to offset future copies from the first buffer to
4 the receive buffer.

1 19. The article of claim 17 wherein the storage medium further comprises machine-
2 readable instructions to copy the at least a portion of the first buffer to the receive
3 buffer without notifying a host processor.

1 20. The article of claim 17 wherein the storage medium further comprises machine-
2 readable instructions to receive packets at the first buffer.

1 21. A method comprising:
2 setting a first and a second precondition in a system for receiving packets;
3 receiving packets of a network transmission at a network offload engine of the
4 system;
5 copying at least a portion of the received packets to a host buffer without
6 notifying a host processor in response to the system meeting the first precondition;
7 re-setting the first precondition;
8 repeating the method until meeting the second precondition;
9 notifying the host that the second precondition has been met; and
10 copying any remaining of the received packets in the network offload engine to
11 the host buffer after said notifying the host.

1 22. The method of claim 21 wherein said copying the at least a portion of the
2 received packets of the offload engine to the host buffer without notifying the host
3 processor comprises copying the at least a portion of the received packets prior to
4 receiving all of the packets of the network transmission.

1 23. The method of claim 21 wherein said receiving packets of the network
2 transmission at the network offload engine comprises receiving packets at a first
3 buffer of the network offload engine.